

REMARKS

Claims 1 and 4-8 are pending in the Application, of which claims 1 and 8 are independent. Applicants respectfully submit that the pending claims are in condition for allowance, and respectfully request that the Examiner pass the claims to allowance.

Applicants thank the Examiner for withdrawing the objection to the Specification and the 35 U.S.C. §102(b) rejection over Japanese Laid-Open Patent Application JP4-206162 to Choichi et al (corresponding to Japanese Patent Application No. 2-325449, hereafter “Choichi”) (Office Action at page 2).

I. Claim Rejections under 35 U.S.C. §103(a)

In the previous Office Action, the Examiner indicated that claims 3-8 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims (May 13, 2008 Office Action at page 3). Specifically, the Examiner recognized that:

[Choichi] failed to teach or suggest specific structural features of the claimed solid polymer cell assembly, in particular,

an upstream unit cell provided on the upstream side in a flow direction of the oxygen-containing gas, and a downstream unit cell provided on the downstream side in the flow direction of the oxygen containing gas; and a coolant flow passage is provided such that a coolant flows serially from said upstream unit cell provided on the upstream side in the flow direction of the oxygen-containing gas to said downstream unit cell provided on the downstream side of the flow direction of the oxygen containing gas so that temperature [sic] of said downstream unit cell provided on the downstream side in the flow direction of the oxygen-containing gas is kept higher than temperature [sic] of said upstream unit cell provided on the upstream side in the flow direction of the oxygen-containing gas (as set forth in claim 3 and claims 4-7, which are dependent thereon), and,

a connection passage member is provided between juxtaposed unit cells; and a reactant gas connection passage and a coolant connection passage are formed in the connection passage member for serially supplying the reactant gas and the coolant (as set forth in claim 8).

(May 13, 2008 Office Action at page 3)

Applicants therefore amended claim 1 to include the limitations of claim 2 and 3, and amended dependent claim 8 to include the limitations formerly recited in independent claim 1, transforming dependent claim 8 into an independent claim. The Examiner has now withdrawn the previous notice of allowability, and submits that Choichi discloses each of the above-quoted features, with the exception of “a coolant flow passage” (Office Action at page 3). The Examiner does not quote any particular passages in Choichi, citing only to “Figure 1” (Office Action at page 3), we assume because of the difficulty in procuring an automatic machine translation. Applicants respectfully traverse the rejections.

A. Claims 1, 4-5, and 8

Claims 1, 4-5, and 8 are rejected under 35 U.S.C. §103(a) as being obvious over Choichi in view of Japanese Patent Application No. JP11-312531 to Taiji (hereafter “Taiji”).

Applicants respectfully submit that Choichi and Taiji, alone or in combination, do not disclose or suggest that *at least part of a reactant gas flow passage for said reactant gas extends serially from a passage formed on an upper side of the assembly of said upstream unit cell to a passage formed on a lower side of the assembly of said downstream unit cell and that said reactant gas flow passage includes a fuel gas flow passage and an oxygen-containing gas flow passage, and the oxygen-containing gas and the fuel gas flows in a counterflow manner in the oxygen-containing gas flow passage and the fuel gas flow passage along both surfaces of the assemblies of said unit cells*, as recited in independent claim 1. The Examiner cites Choichi at Figure 1 for these features of claim 1. Applicants respectfully submit that Figure 1 does not teach the above features.

Figure 1 of Choichi shows junction bodies 12 formed by connecting gas diffusion electrodes 14A and 14B on both sides of a solid polymer electrolyte film 13 (Choichi at Abstract). In Choichi, the reactant gas flow passage does not extend serially from a passage formed on an upper side of the assembly of said upstream unit cell to a passage formed on a lower side of the assembly of said downstream unit cell. Further, the oxygen-containing gas and the fuel gas do not flow in a counterflow manner in the oxygen-containing gas flow passage and the fuel gas flow passage along both surfaces of the assemblies of said unit cells.

Although the Examiner does not specify what part of Choichi the Examiner interprets as disclosing these features, Applicants believe that the Examiner is indicating that the criss-crossing element 20 connects the fuel cells in the manner recited in claim 1. However, the Specification of Choichi clarifies that this is not the case.

Applicants attach a partial translation of Choichi as Appendix A. Specifically, Appendix A indicates that element 20 of Choichi is a “connection cable.” In Choichi, electricity is generated in each assembly 12. The electricity is then collected in series per cell unit 10 by connecting the assemblies 12 with connection cables 20. The ends of the connection cables 20 are connected to the power connectors 21A and 21B. Choichi does not disclose or suggest a configuration of reactant gas flow passages as recited in claim 1.

The addition of Taiji does not cure the factual deficiencies of Choichi. Taiji is generally directed to a fuel cell system where fuel gas and oxidizing gas flow continuously from a low temperature side of the system to a high temperature side of the system. When water condenses on the lower-temperature side, it evaporates on the higher-temperature side. Taiji is silent as to the above-quoted features of claim 1.

Claims 4-5 depend from claim 1, and therefore include each and every element of claim 1. Independent claim 8 also recites *wherein at least part of a reactant gas flow passage for said reactant gas extends serially from a passage formed on an upper side of the assembly of said upstream unit cell to a passage formed on a lower side of the assembly of said downstream unit cell*, and is therefore allowable. Accordingly, Applicants respectfully request that the Examiner reconsider and withdraw the 35 U.S.C. §103(a) rejection of claims 1, 4-5, and 8.

B. Claims 6 and 7

Claims 6 and 7 are rejected under 35 U.S.C. §103(a) as being obvious over Choichi and Taiji, as applied to claim 1, and further in view of U.S. Patent No. 6,821,661 to Haridoss (hereafter “Haridoss”). Applicants respectfully traverse the rejection.

Claims 6 and 7 depend from claim 1, and therefore include each and every feature of claim 1. As noted above, Choichi and Taiji, alone or in combination, do not disclose or suggest

each and ever feature of claim 1. Specifically, Choichi and Taiji do not disclose or suggest that *at least part of a reactant gas flow passage for said reactant gas extends serially from a passage formed on an upper side of the assembly of said upstream unit cell to a passage formed on a lower side of the assembly of said downstream unit cell and that said reactant gas flow passage includes a fuel gas flow passage and an oxygen-containing gas flow passage, and the oxygen-containing gas and the fuel gas flows in a counterflow manner in the oxygen-containing gas flow passage and the fuel gas flow passage along both surfaces of the assemblies of said unit cells*, as recited in independent claim 1.

The addition of Haridoss does not cure the factual deficiencies of Choichi and Taiji with respect to the above-quoted features of claim 1. Haridoss discusses hydrophilic anode gas diffusion layers in fuel cells. Haridoss is silent with respect to the above-quoted features of claim 1.

In light of the above, Applicants respectfully submit that Choichi, Taiji, and Haridoss, alone or in combination, do not disclose or suggest each and every element of claims 6 and 7. Accordingly, Applicants respectfully request that the Examiner reconsider and withdraw the 35 U.S.C. §103(a) rejection of claims 6 and 7.

CONCLUSION

In view of the above, Applicants believe that the pending application is in condition for allowance. If the Examiner deems that issues persist, please contact the Applicants' attorney.

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